

ANT-538 Antenna

USER GUIDE

The ANT-538 antenna is designed for a variety of mobile applications.

The ANT-538 is an active GPS antenna, 88.9 mm (3.5") in diameter with a removable ground plane and survey mount. It is designed to operate at the GPS L1 frequency of 1575.42 MHz, the GLONASS L1 frequency between 1602 and 1616 MHz, as well as L-Band signals between 1525 and 1560 MHz. Its mechanical configuration is a spherical radius molded radome which provides enhanced protection against rain and ice. This antenna includes the following:



- internal 33 dB low noise amplifier
- bias voltage from 2.5-24 V DC for operation
- band pass filtering
- DC bias provided through the coaxial connector

NovAtel offers optional coaxial cables of various lengths and models for interconnecting between the antenna and NovAtel GNSS receivers.

This guide provides the basic information you need to install and begin using your new antenna.

ADDITIONAL EQUIPMENT REQUIRED

- A device with an antenna input port that both receives the RF signal and provides 2.5 to 24.0 V DC to the antenna is required to set up the ANT-538. (NovAtel GNSS receivers provide the necessary power through their antenna RF connectors.)
- Coaxial cable with a male TNC connector

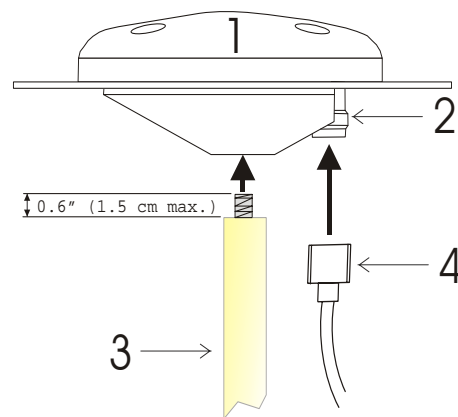
INSTALLING THE ANTENNA

Shown below are two methods of installing the ANT-538:

1. The ANT-538 antenna can be attached to any 5/8" - 11 threaded mount.



WARNING: Ensure there is no more than 0.6" (1.5 cm) of travel when you attach the ANT-538 to a mount. If the stock of the threaded mount impacts the antenna, it can cause damage and void your warranty.

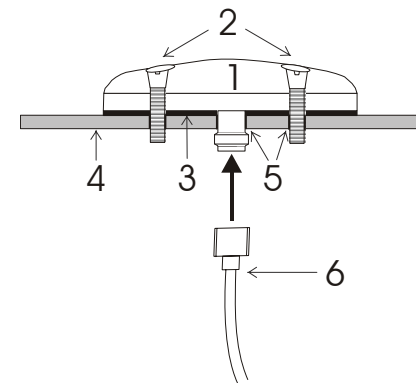


Ref. #	Description
1	ANT-538 antenna
2	TNC connector
3	User-supplied antenna mount
4	Attach the male TNC connector of the coaxial cable to the antenna's TNC connector (go on to step c on the next panel)

2. The mini ground plane and survey mount can be removed by unscrewing the four mounting screws.
 - a. The antenna can then be attached using the square 4-bolt mounting pattern, shown in the *Mechanical Drawings* section of this guide, and the four 10 - 32 mounting screws. You may provide your own screws if

you need longer length screws.

Ref.#	Description
1	ANT-538 antenna
2	Screws
3	Gasket
4	Mounting surface
5	Pre-drilled mounting holes
6	Coaxial cable



- a. Attach the male TNC connector of the coaxial cable to the antenna's TNC connector.

For installation method 1 or 2, attach the other end of the coaxial cable to the antenna input port of the receiving device, which must provide power as detailed in the *SPECIFICATIONS* section of this guide. NovAtel GNSS receivers provide the necessary power through their antenna RF connectors.

The graphic below shows an example of where the 538 antenna may be placed on a vehicle (not to scale).

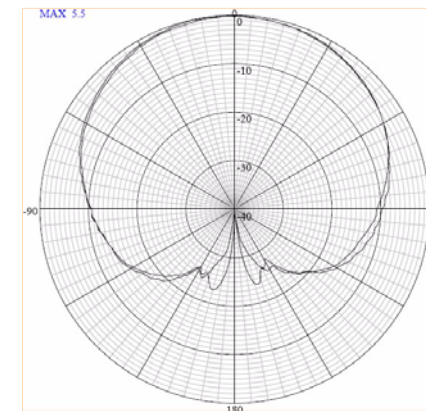


ANTENNA CARE

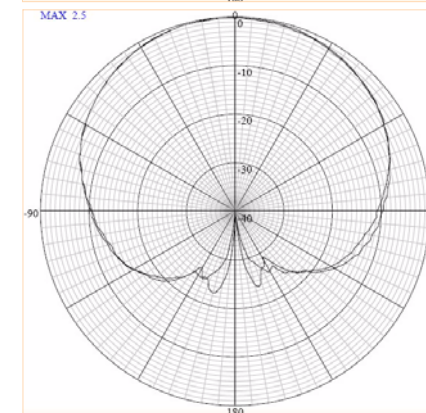
The ANT-538 is designed to withstand the elements, including rain, snow, and dust. However, to ensure your antenna performs optimally, keep the radome clean and brush off any ice and snow. In addition, ensure the TNC connector remains clean and dry and replace the dust cap when a cable is not connected.

ELEVATION GAIN PATTERNS

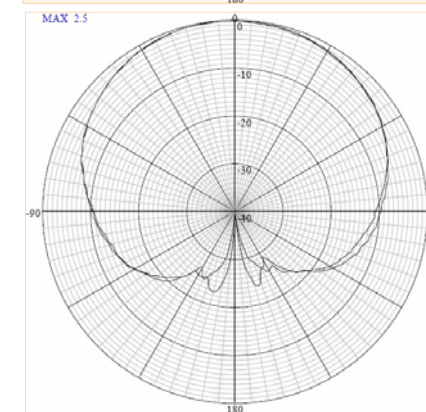
L1 GPS:



L1 GLONASS:



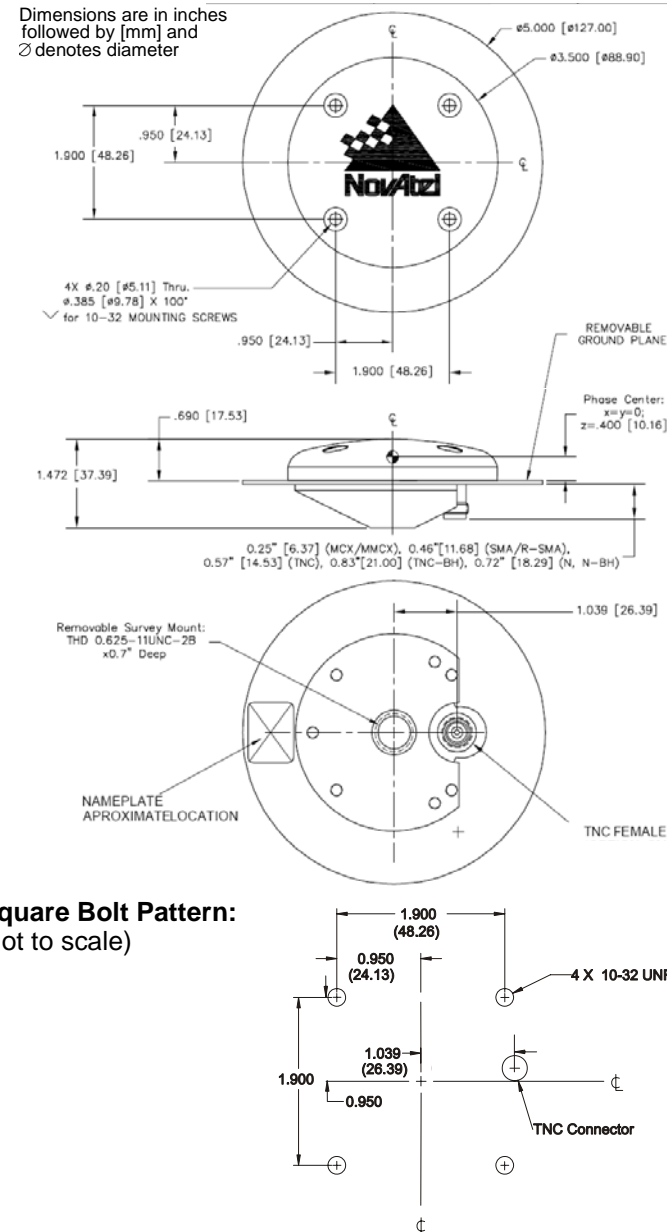
L-Band:



SPECIFICATIONS

RF	
3 dB pass band (typical)	L1 (1525 to 1616 MHz)
Antenna Gain (dBic) where G.P. = Ground Plane	L-Band Free Space GPS L1 Free Space L1 Glonass Free Space
90° zenith	>+2.25 +5.5 >+3.3
60°-90° elevation	>+2.0 >+4.8 >+2.5
30° elevation	>-2.3 +1.8 >-0.2
20° elevation	>-3.0 +0.3 >-1.6
10° elevation	>-4.7 -1.2 >-3.2
LNA gain	33 dB
Polarization	Right-hand circular
Noise figure (typical)	< 2.1 dB
Nominal impedance	50 Ω
VSWR	< 1.5 : 1
POWER	
Input voltage	2.5 - 24.0 VDC
Current (typical)	< 39 mA
PHYSICAL	
Radome Diameter x Height	8.89 cm (3.50") x 1.75 cm (0.690")
Weight of antenna with ground plane and adapter:	385 g (13.6 oz.)
Weight of antenna only:	185 g (6.5 oz.)
ENVIRONMENTAL	
Maximum altitude	21336 m (70000 ft.)
Operating/Storage temperature	-55°C to +85°C (-67°F to +185°F)
Vibration	>30 G
Designed to meet these standards	FAA TSO-C144 DO-160D DO-228 MIL-C-5541 MIL-E-5400 MIL-I-45208A MIL-STD-810 SAE J1455

MECHANICAL DRAWINGS



WARRANTY POLICY

NovAtel Inc. warrants that its Global Positioning System (GPS) products are free from defects in materials and workmanship, subject to the conditions set forth below, for the following periods of time:

GNSS Antenna Modules:	One (1) Year from date of sale
Cables and Accessories:	Ninety (90) Days from date of sale

Date of sale shall mean the date of the invoice to the original customer for the product. NovAtel's responsibility respecting this warranty is limited solely to product repair at an authorized NovAtel location only. Determination of repair will be made by NovAtel personnel or by technical personnel expressly authorized by NovAtel for this purpose.

The foregoing warranties do not extend to

(i) nonconformities, defects or errors in the products due to accident, abuse, misuse or negligent use of the products or use in other than a normal and customary manner, environmental conditions not conforming to NovAtel's specifications, or failure to follow prescribed installation, operating and maintenance procedures, (ii) defects, errors or nonconformities in the products due to modifications, alterations, additions or changes not made in accordance with NovAtel's specifications or authorized by NovAtel, (iii) normal wear and tear, (iv) damage cause by force of nature or act of any third person, (v) shipping damage; or (vi) service or repair of product by the dealer without prior written consent from NovAtel.

In addition, the foregoing warranties shall not apply to products designated by NovAtel as beta site test samples, experimental, developmental, preproduction, sample, incomplete or out of specification products or to returned products if the original identification marks have been removed or altered.

The warranties and remedies are exclusive and all other warranties, express or implied, written or oral, including the implied warranties of merchantability or fitness for any particular purpose are excluded.

NovAtel shall not be liable for any loss, damage or expense arising directly or indirectly out of the purchase, installation, operation, use or licensing or products or services. In no event shall NovAtel be liable for special, indirect, incidental or consequential damages of any kind or nature due to any cause.

There are no user-serviceable parts in the ANT-538 and no maintenance is required. If the unit is faulty, replace with another unit and return the faulty unit to NovAtel Inc. You must obtain a RETURN MATERIAL AUTHORIZATION (RMA) number by calling NovAtel Customer Service at 1-800-NOVATEL (U.S. and Canada only) or 403-295-4900 before shipping any product to NovAtel or a dealer. Once you have obtained an RMA number, you will be advised of proper shipping procedures to return any defective product. When returning any product to NovAtel, please return the defective product in the original packaging to avoid damage.

✉ Before shipping any material to NovAtel or our Dealer, please obtain a Return Material Authorization (RMA) number from the point of purchase. You may also visit our website (<http://www.novatel.com>) and proceed to Registered Services from our Home page.

WEEE NOTICE

If you purchased your ANT-538 in Europe, please return it to your dealer or supplier at the end of its life. The objectives of the European Community's environment policy are, in particular, to preserve, protect and improve the quality of the environment, protect human health and utilise natural resources prudently and rationally. Sustainable development advocates the reduction of wasteful consumption of natural resources and the prevention of pollution. Waste electrical and electronic equipment (WEEE) is a regulated area. Where the generation of waste cannot be avoided, it should be reused or recovered for its material or energy. WEEE products may be recognised by their wheeled bin label.

RoHS NOTICE

The ANT-538 is compliant with the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC.

QUESTIONS OR COMMENTS

If you have any questions or comments regarding your ANT-538 antenna, please contact NovAtel Customer Service using one of methods provided below.

Email: support@novatel.com

Web: www.novatel.com

Phone: 1-800-NOVATEL (U.S. & Canada)

403-295-4900 (International)

Fax: 403-295-4901

